

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claims 1-23 (canceled)

1 Claim 24. (original) A method of providing real time traffic weighted
2 routes using a navigation system having a route calculation program that uses a map
3 database that includes road segment records that represent portions of roads in a road
4 network in a geographic region, comprising the steps of:
5 receiving a wireless transmission indicating weightings applicable to roads in said
6 road network;
7 calculating a solution route between a first location in said geographic region and
8 a second location in said geographic region, wherein said solution route comprises a list
9 of road segment records that was obtained by forming at least one search tree formed of a
10 plurality of gates, wherein each gate represents a physical location on said road network
11 and an accessible direction relative to said physical location;
12 identifying to which of said road segments said weightings apply;
13 incrementing each of said gates in said at least one search tree that corresponds to
14 a road segment to which one of said weightings applies;
15 growing a search tree by expanding gates to form successor gates; and
16 evaluating which of said successor gates to select for further expansion using said
17 weighted gates.

Claims 25-29 (canceled)

1 Claim 30. (original) In a route calculation program that determines a
2 solution route between a first location in a geographic region and a second location in the
3 geographic region, using a geographic database that includes data records that represent
4 road segments that form a road network in the geographic region, wherein each road
5 segment is designated as having a rank selected from a plurality of ranks, and wherein

6 said rank of a road segment is indicative of a functional classification thereof, and
7 wherein the solution route includes a list of road segments that connect via the road
8 network between the first location and the second location,
9 wherein the route calculation program evaluates successor road segments of at
10 least one road segment upon which one of said positions is located and successor road
11 segments thereof to find a plurality of road segments that connect via the road network to
12 the other of said positions, and
13 wherein during the process of evaluating successor road segments, a plurality of
14 partial solution routes are developed, wherein each of said partial solution routes
15 comprises a plurality of road segments connecting the one of said positions to a road
16 segment whose successor road segments have yet to be evaluated;
17 wherein during the process of evaluating successor road segments, the route
18 calculation program maintains a list of said road segments whose successor road
19 segments are yet to be evaluated;
20 wherein an improvement comprises:
21 defining a focus ring area bounded between an inner radius corresponding to a
22 distance of the road segment closest to a point of focus toward which said successor road
23 segments are evaluated and an outer radius corresponding a focus ring width; and
24 suppressing from evaluation any road segments whose successor road segments
25 are yet to be evaluated that have a rank less than a highest rank.

26
1 31. (new) The method of Claim 24 wherein each gate identifies an associated
2 road segment by referring to a segment database ID.

3
1 32. (new) The method of Claim 24 wherein each gate identifies an associated
2 road segment with a pointer.

3
1 33. (new) The method of Claim 24 wherein, in each gate, the accessible
2 direction is reverse from a direction of vehicle travel.

1 34. (new) The method of Claim 24 wherein each gate also includes a
2 reference to a predecessor gate.

3
1 35. (new) The method of Claim 24 further comprising:
2 after calculating the solution route from the first location to the second location,
3 augmenting an inbound search tree by adding thereto that portion of the at least one
4 search tree that formed part of the solution route.

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1 36. (new) The method of Claim 35 further comprising:
2 maintaining in a memory of the navigation system the inbound search tree as
3 augmented with that portion of the at least one search tree that formed part of the solution
4 route.

5
1 37. (new) The method of Claim 24 further comprising:
2 providing a user of the navigation system with guidance for following the solution
3 route to the second location from a physical location of the navigation system.

4
1 38. (new) The method of Claim 24 further comprising:
2 prompting a user of the navigation system to indicate whether a new route should
3 be calculated upon detection that the navigation system departed from the solution route.

4
1 39. (new) The method of Claim 24 wherein the weighting indicates traffic
2 conditions.

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1 40. (new) The method of Claim 24 wherein the weightings are provided to
2 the navigation system from a traffic monitoring service.

3
1 41. (new) The method of Claim 30 wherein said solution route comprises a
2 list of road segment records that was obtained by forming at least one search tree formed
3 of a plurality of gates, wherein each gate represents a physical location on said road
4 network and an accessible direction relative to said physical location;

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1 42. (new) The method of Claim 41 wherein each gate identifies an associated
2 segment of a road by referring to a segment database ID.

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4 43. (new) The method of Claim 41 wherein each gate identifies an associated
5 segment of a road with a pointer.

6

1 44. (new) The method of Claim 41 wherein each gate also includes a
2 reference to a predecessor gate.